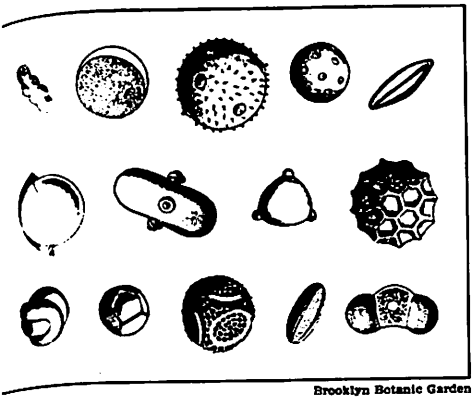


Brooklyn Botanic Garden

Pollen Grains are so small that they look like tiny specks to the naked eye. But they have definite shapes and surface patterns depending on the kind of plant that produced them.

male parts of a flower. After pollination, the process of seed development occurs in the female part, called the pistil. A cone-bearing plant produces pollen in its *male pollen cones*. Pollination occurs when the wind carries pollen from the male pollen cones to the *female seed cones*.

Many people are allergic to pollen. Large amounts of pollen in the air cause them to develop hay fever. This allergy results in headaches, red and itching eyes, a runny nose, and periods of sneezing. Ragweed pollen is the most common cause of hay fever in the United States.

Fossilized pollen grains are often preserved in sediments from lakes and bogs. By studying these grains, scientists can learn much about the plant life and climate of earlier ages.

Pollen Grains

Pollen grains vary in shape, size, and surface features. These variations make the grains of each species of plant different. Most pollen grains are either round or oblong, and they range from 15 micrometers to more than 200 micrometers wide. (About 25,000 micrometers equal 1 inch.) Every grain has an outer shell, which may be smooth or wrinkled, or covered with spines or knobs. This shell prevents the inner cells from becoming dry.

Such plants as corn and wheat, which are pollinated by wind, produce huge amounts of pollen. A corn plant can produce more than 18 million grains. But some plants that are pollinated by birds and insects produce only a few thousand grains.

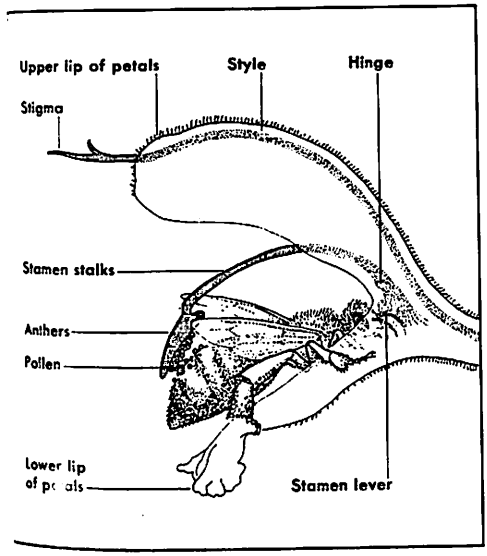
Most pollen grains live only several days or weeks after being released. However, the cells of date palm pollen live for as long as a year.

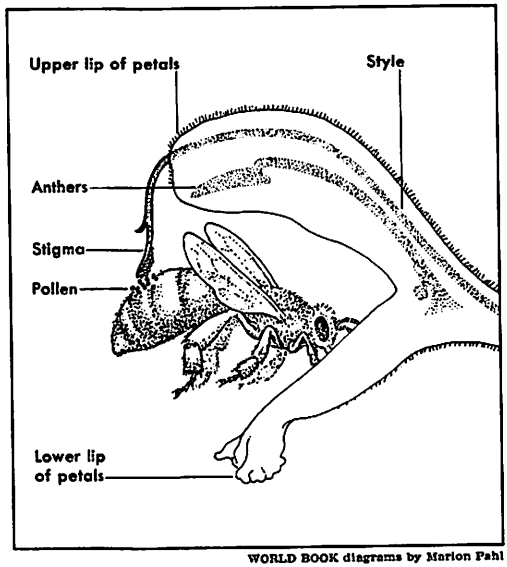
Methods of Pollination

There are two methods of pollination, *cross-pollination* and *self-pollination*. Cross-pollination is the transfer of pollen from the stamens of one flower to the pistil of a flower of another plant. Self-pollination occurs when pollen is transferred from the stamens of one flower to the pistil of the same flower, or to another flower on the same plant.

Cross-Pollination is the most common method. For seeds to develop, cross-pollination must occur between flowers of the same or closely related species.

Wonders of God





WORLD BOOK diagrams by Marion Pahl

Pollination of the European Sage is a complicated operation. When a bee enters a young flower, *left*, the insect's head hits the stamen lever. This hinged lever causes the anthers to swing downward, depositing pollen on the bee's back. If the bee goes to an older flower, *right*, pollination will occur. In the older flower, the stigma droops down to receive pollen. As the bee enters the flower, the pollen is brushed off its back and sticks to the stigma.